Research on Digital Cultural Creation Development Based on Jinxiu Yao Headdress Culture County

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Abstract: In recent years, the development of regional traditional culture has taken a huge leap forward with the maturity of Internet technology, and people can truly understand the culture of ethnic minority areas through virtual reality technology and digital models under Internet technology without leaving home. However, at present, the development of cultural and creative products related to regional culture still stays at the surface level of combining product modeling colors with specific elements in regional culture, and the research on the combination of regional culture and Internet technology for digital cultural and creative product development is relatively rare. This paper takes the digital cultural and creative development of Jinxiu Yao headdress culture as the practice, collects and organizes the cultural data of Jinxiu headdress as a picture library, combines the development of cultural and creative culture and tourism in Jinxiu area, develops the cultural and creative products related to Jinxiu headdress culture with the use of software and hardware under Internet technology, changes the single communication methods such as paper dissemination and field experience of Jinxiu culture in the past, develops into a communication method that combines three-dimensional reality and Internet virtuality, and explores a new path for the development of digital cultural creation of Jinxiu Yao ethnic group under Internet technology.

Keywords: Internet technology, Jin XiuYao headdress, digital cultural creation, linkage development

1. The origin and characteristics of Yao headdresses

1.1 The origin of the Yao headdress

Traditionally, headdresses refer to accessories that people have a certain practical significance to protect the head or beautify the appearance of the head, but in a broad sense, headdresses include not only ornaments used to decorate the head, but also the grooming form of the hair itself[1] .The headdress of the Jin Xiu Yao people pay more attention to the external accessories worn on the head, and there are not too many requirements for the grooming method of the hair itself, so the research on the headdress culture of the Jin Xiu Yao people is mainly concentrated in the head decoration accessories of the Yao people. There are many theories about the origin of Yao headdresses, and their practicality and decoration are recognized by most Yao costume scholars. In the past, when the Yao people went to the land to work in farming, they often had to bend down to work, and some debris or insects were easy to stain the scalp, so wearing headdresses could play a role in protecting the

head. Now with the development of the economic level, the Jinxiu Yao people pay more attention to aesthetics, the headdress they wear is more and more rich, and some silverware that symbolizes social status, such as silver earrings and silver head plates, is also more and more diverse.

1.2 Characteristics of the headdress style of each branch of the Yao ethnic group

Jinxiu Dayao Mountain Yao tribe mainly has five major branches of Chashan Yao, Hua Basket Yao, Ao Yao, Shan Zi Yao, and Pan Yao, and the headdress category of each branch is very different, even if the same branch has different headdress styles due to regional differences[2], as shown in Table 1.

The heads of adult men of Chashan Yao are generally wrapped in colored headbands or dark blue solid color headbands, and the top of the head is generally decorated with strips of hairpins. The headdress of an adult woman is very decorative with a ribbon wrapped around the top of the head and then with three stretched silver plates on the top of the head, and the other is a white cloth wrapped around the head, giving a simple and pure beauty. Children of Chashan Yao, both boys and girls, wear silver god hats from about one year old, and generally decorate the gods with the land as a decoration, which means to bless children with peace and auspiciousness. The headdress of the flower basket Yao men is relatively simple, generally wrapped in a red headband. Flower basket Yao women's headdress is generally only after marriage will wear a headdress, the headdress is mainly sewn from black and white two pieces of cloth, the lower part is made of black cloth to pick the edge of the red line, the upper part is made of white cloth as the base to sew small flowers decoration, the upper and lower parts are connected after the back knot buckle. The most eye-catching thing about Ao Yao's headdress is that the headdress worn by her women is made of natural bamboo shell bending, and the overall shape is inverted ladder shape. The headdress of Ao Yao men is generally wrapped around a headband embroidered with a dragon pattern, and the overall is very simple. Shanziyao men's headdresses are generally wrapped around a black headband, and the headband is surrounded by colorful edges of the pick. Shanziyao women's headdress is often wrapped in dark blue cloth, the edge of the cloth is decorated with multiple layers of red and white patterns, and the two sides are mainly white tassels covering the side face, and the whole headdress is very full and layered. Panyao headdress according to the form is mainly divided into flat head and pointed head two, flat head Panyao headdress is generally wrapped in white cloth, and then wrapped around with colored ribbons, and finally the top with a square and fringed headkerchief covering it, very three-dimensional. The pointed head pan yao headdress is generally wrapped from the top of the head from the top of the head to a pointed top shape, and the head is wrapped in an embroidered headkerchief, and finally wrapped with a colored ribbon to connect the upper and lower parts.

*Table 1 The headgear characteristics of the Yao ethnic group in Jinxiu*

Branch categories	Appearance shape	Color pattern	Functional characteristics
Cha shan yao	The man wrapped in cloth and secured it with a band, while the woman wrapped three silver plates with a ribbon	It is dominated by blue, five-color and white	In terms of practicality, it is used to shield mosquito bites or block dust and debris during farm work; in terms of decoration, it is used to decorate and dress up during festivals to attract the opposite sex; in terms of spirit, it is used to commemorate the ancestors and remember the great achievements of the ancestors
Flower basket Yao	The man is wound with a headband; the woman is sewn from two pieces of cloth, top and bottom, and fastened at the back	It is mainly red, black and white, and is decorated with small flowers	
Ao Yao	Women's headdresses are bent in an inverted trapezoidal shape with bamboo shells, while men's headbands are wound with a single headband	The color is dominated by blue monochromatic color, with dragon pattern decoration	
Shan Zi Yao	Men are wrapped in decorated headbands; women are wrapped in cloth flakes with tassels on both sides	It is mainly black and white, and decorated with red and white patterns	
Pan Yao	The flat head is wrapped in ribbons and covered with a square top; the tip is wrapped from the bottom up into a spire, surrounded by a headkerchief	It is mainly white, dark black, and five colors	

1.3 Yao headdress representative ornament finishing

There are many types of headdresses of the five major Yao tribes, and the patterns and ornaments on the headdresses of each ethnic group have their own characteristics, and each pattern has certain symbolic significance. In this article, the patterns of the headdresses of each branch are collected and sorted out, and the line drafts are extracted to summarize the following basic patterns, as shown in Table 2.

Table 2 The representative patterns and single-line drafts of the headgear of the Yao ethnic groups

Name	Patterns	One-line pattern refinement diagram
Octagonal pattern(Pan Yao)		
Dragon pattern (Ao Yao)		
Keel pattern (Chashan Yao)		
Swastika (Shan Zi Yao)		
Human print		
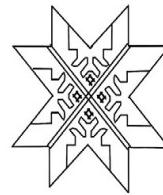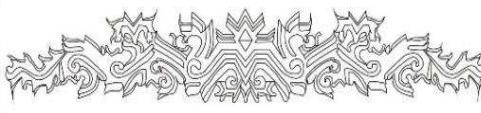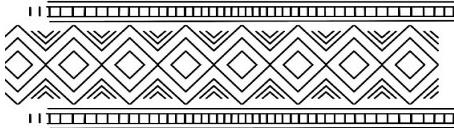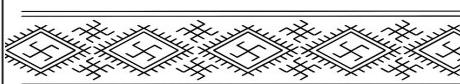
2. Yao headdress culture and digital cultural and creative design

2.1 Yao headdress cultural and creative development advantages and shortcomings

Regional cultural construction is an important foundation for the economic development of tourism and cultural cities, and is based on the organic integration of industrial development, talent introduction and comprehensive development based on a deep understanding of regional culture [3-4]. Jinxiu Yao Autonomous County, as a settlement of the Yao people, has preserved a large number of Yao people's living customs and natural ecological scenery, the Yao people have always had the habit of wearing headdresses, on the one hand, the headdresses have played a material role in covering the ash and preventing insects insulation in labor work, on the other hand, the shape structure of the Yao headdresses and the embroidered ornaments reflect the ecological culture, religious pursuit and aesthetic consciousness of the Yao people. Jinxiu Autonomous County is located in the Dayao Mountain Range, the regional ethnic culture is very rich, Jinxiu's headdress culture is one of its important representatives, but due to the remoteness of the region, the transmission method of this headdress culture is mostly a single master-apprentice inheritance or family tradition, people outside the Dayao Mountain can rarely understand or learn the headdress culture of the Jinxiu Yao ethnic group. Now that we are moving towards the big data era of the Internet of Everything in Industry 4.0, although Jinxiu has completed the general infrastructure facilities supported by the national poverty alleviation project and the fiber optic broadband in the county has been basically covered, we can rarely search for relevant terms of Jinxiu headdress culture on the Internet. The existing Jinxiu headdress culture related cultural and creative products are small, there are a small number of products are also imitations of traditional headdress production and pattern reproduction, failed to explore the deep meaning of Jinxiu headdress culture, did not make full use of the contemporary trend of Internet technology for innovative design of cultural and creative products, which makes the lack of interaction between users and products.

2.2 The linkage between Internet technology and Yao digital cultural creation

Since the Eighteenth National Congress, cultural self-confidence has been repeatedly emphasized, and the integration of culture and science and technology is a new trend in the development of cultural undertakings in the future, and the development of regional ethnic culture has become an important part of the cause of socialism with Chinese characteristics[5]. The application of software and hardware technology under Internet technology in the development of cultural and creative products, on the one hand, will increase the multi-path development of cultural and creative products and thus enhance the competitiveness of the products themselves, on the other hand, through the Internet platform can do a good job in the display and publicity of cultural and creative products, to avoid the embarrassing situation of "wine is also afraid of deep alleys" in this era of fierce competition. In addition, the development of Yao digital cultural and creative products will in turn promote the further development of science and technology. Culture is the core and soul of scientific and technological development, excellent science and technology need to be perceived by the public

with the help of cultural carriers, and at the same time, new technologies will be needed to support in the development of digital cultural and creative innovation, which invisibly promotes the progress and development of Internet technology, and the two are like the two wheels of the car and the wings of the bird, promoting common development of each other [6-7]. By exploring the supporting role of Internet technology in cultural development and the internal driving mechanism provided by culture for Internet innovation, analyzing the great advantages of Internet technology in the development of regional cultural and creative products, it is conducive to finding a balance between cultural development and Internet scientific and technological innovation, clarifying the challenges and opportunities of the integration and development of culture and technology, and promoting the linkage development between Internet technology and culture.

2.3 Yao headdress culture digital cultural creation development significance

Benny. fourth. Beam and Hazel. In Cultural Knowledge for New Design Thinking and Practice: Dialogue, Clark divides the content of culture into three levels: material, social, and spiritual[8]. From these three levels, the Jinxiu Yao headdress culture is subdivided, the material culture corresponds to the tangible headdresses and related hair ornaments made for each Yao ethnic group, the social level corresponds to the folk performances of the Yao people, the headdresses of marriage and funeral, and the spiritual culture corresponds to the connotation of the cultural beliefs of the Yao people, As shown in Table 3.

Table 3 Yao nationality headdress cultural resources

There are three levels of culture	Presentation direction	Specifics
Material culture	Headgear fabric	The woven fabrics covered with the top of the head are mostly decorated with Yao representative patterns to commemorate the ancestors or look forward to a better life
		The tapestry is coiled in different shapes on the head
	Silver hair ornament	Silver headdresses are mostly decorated with patterns that represent auspicious wishes
		Silver hair ornaments are represented by two symbols of strength and femininity, such as silver plates or silver hats
Socio-cultural	Artistic performances	When performing in Yao Square, people wear different types of headdresses according to different programs
	Folk customs	Different headdresses should be worn on different occasions of marriage and funeral with different symbolic significance
Spiritual culture	ethos	The headdress commemorates the great struggles and deeds of the ancestors and calls on the future generations to learn the great spirit of the predecessors
	Totem culture	Yaomin embroidered a tattoo symbolizing the gods on a headdress to pray for protection

Through the in-depth analysis of the culture of Jinxiu headdress, the current boom of Internet software and hardware technology is combined with it, which increases the sense of science and technology and human-computer interaction of the product, and can coordinate the design beauty of the product and the cultural connotation behind the product. The use of Internet software and hardware technology combined with the manual experience of local craftsmen to develop products with Jinxiu characteristic culture and trend and innovation can stimulate the innovation of local residents' handicraft product production on the one hand, and on the other hand, empower the implementation of rural poverty alleviation policies, promote the sustainable development of the cultural and creative design and development industry in Jinxiu area, and promote the realization of the rural revitalization strategy.

3. The design process of Yao headdress culture digital cultural creation

3.1 Smart technology and craftsmanship are integrated

The digital cultural creation development of Jinxiu Yao headdress culture combines the yao characteristic culture and the software and hardware technology under the Internet technology, expresses the multiple possibilities of the Yao headdress culture with a unique development situation, takes the modeling structure and embroidery pattern of the Jinxiu Yao headdress as the carrier, and combines the cultural and creative production experience of jinxiu local craftsmen to create digital cultural and creative products rich in Jinxiu regional culture and full of technology and human-computer interaction. Through the creative development of Jinxiu regional characteristics of cultural creativity, to create more possibilities for the development of local cultural and creative industries, to promote the comprehensive three-dimensional development of Jinxiu tourism cultural industry, will play a good demonstration of the development and development of ethnic culture in various regions, and play an important role in the intangible cultural inheritance of ethnic minorities.

3.2 Jinxiu headdress culture digital cultural creation development framework and process

The jinxiu yao ethnic headdress culture digital cultural creation design process can be divided into the following parts. First of all, the preliminary research, the collation and analysis of the jinxiu Yao headwear resources is conducive to better understanding the deep cultural meaning behind the headdress, and plays an important role in strengthening the connection between product design and regional culture, so as to establish product positioning faster. Secondly, in the product design and development, the designer and the non-hereditary heirs should reach a cooperative relationship, the craftsman will be the production skills and the achievable operation to inform the designer, the designer in the technical achievable conditions of innovative design, the two mutual promotion to achieve a win-win situation. In the product production stage, designers use intelligent technology to create digital cultural creative products, and convey the Yao culture to consumers in a more scientific and technological way, so as to achieve better dissemination of Yao cultural and creative products in a

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scientific and technological and trendy manner, see Figure 1.
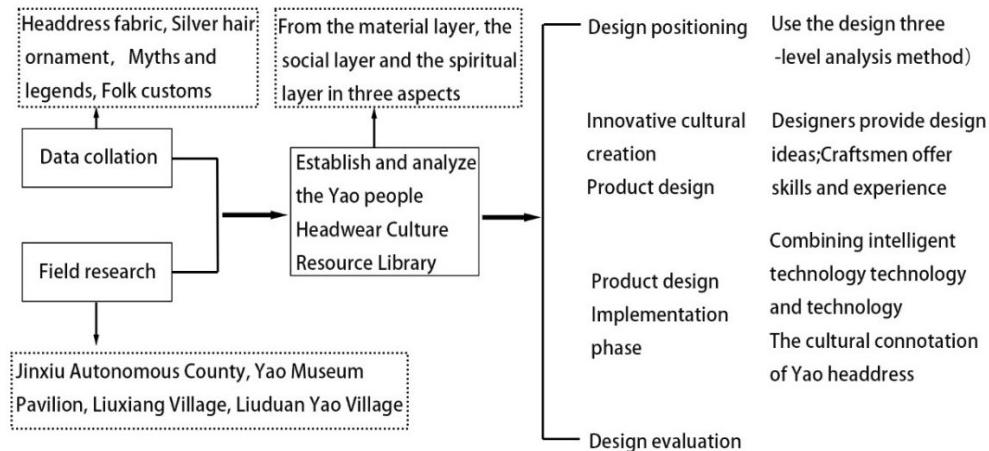
Figure 1 The Design Process and Method of the Digital Cultural Creative Product of Yao Nationality Headdress Culture

4. Yao headdress culture digital cultural and creative product design case

4.1 Jinxiu headdress cultural digital cultural and creative design preliminary research

According to the design framework of the Yao headwear culture digital cultural and creative products proposed in the above research, in order to explore the feasibility and effectiveness of the design, the following design examples are used to verify.

In the preliminary investigation, field investigations were conducted on Jinxiu Autonomous County, Yao Museum, Liuduan Yaozhai and other places, and a large number of Yao head ornament patterns were collected. At the same time, he interviewed the former deputy director of the Minzong Bureau and the non-hereditary inheritors of Yao costume production, and learned about the connotation of Yao costumes, Yao customs and Yao headdress culture face-to-face, and obtained a large amount of information on Yao headdress culture, which played a great enlightening role in the design and development of cultural and creative products in the later period.

4.2 Jinxiu headdress cultural digital cultural and creative design theory support

In the design process, the prototype elements of Yao headdress culture and the elements in product design are analyzed from different angles by using Donald Norman's design three-level analysis method[9], see Table 4.

Table 4 Design elements of Yao nationality headdress culture products

Design three levels	Prototype elements	Design elements
Instinct	The headdress fabrics and silverware worn by Yaomin	Extract fabric and silverware patterns
Behavior	Yaomin fixed the headdress into different shapes; different silver shapes highlight different meanings	The appearance of the product is borrowed from the headdress and silverware style
	The Yao headdress is endowed with many stories and related songs	Built-in smart hardware for writing Yao music and stories
Rethink	The Yaos wear headdresses during the festival to show joy and warmth	Convey a sense of warmth and joy through the color matching and music of the products

4.3 Jinxiu headdress cultural digital cultural and creative product display

Intelligent technology and modern design to join the cultural and creative product design is the mainstream trend of the current cultural and creative market, in the Yao headdress culture digital cultural and creative design, the use of intelligent hardware technology to add LED lighting and voice interaction components into the product, the Yao folk songs, Yao stories and Yao embroidery skills written in the built-in program, so that the product can more show the connotation of Yao culture, see Figure 2. Adding sonic sensing components and curved display components to increase the interaction between users and products is conducive to stimulating users' desire to understand Yao culture and increasing the opportunity for Yao culture to spread.

In addition to introducing intelligent hardware technology into product design, Rhino 3D modeling software is also introduced into the product design process to explore the diversity of product functional modeling. By adjusting the curvature of the curve to find the optimal curvature suitable for the mouse in the human hand, while building two modes of use, arching and flattening, the user is relieved of the fatigue caused by the long-term use of the product in one posture. The palm fitting part is hollowed out, the Yao headdress pattern is applied to it, and the three-dimensional software is used to find the appropriate hollow size, thereby improving the user's sense of experience, see Figure 3. The use of digital technology can greatly enhance the possibility of product modeling, while saving the cost of cultural and creative product development, and increasing the depth and experience of users' feelings about culture and art[10].

Figure 2 "Yao box " smart speaker   *Figure 3 Yao Mouse*
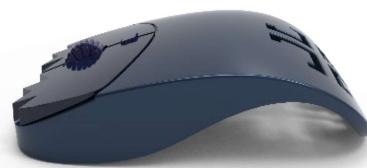
5. Conclusion

In summary, as an important part of protecting and carrying forward the regional culture of ethnic minorities, regional cultural and creative products are an important carrier for the dissemination of China's regional culture to the outside world. Taking the Jinxiu Yao headdress culture as the starting point, the Jinxiu regional culture is innovatively developed with modern design methods, which reduces the sense of distance between cultural and creative products and consumers, and promotes the spread of Jinxiu clothing culture. In the process of designing digital cultural and creative products of Yao headdress culture, the regional cultural and creative product design and development framework and process are proposed, in which the three-level analysis method of design can quickly establish product positioning; designers and craftsmen can cooperate with each other to accelerate the innovative design of products; and finally the integration of intelligent technology into product design and development is a huge driving force for products to gain consumers' love, hoping to provide some reference for future regional cultural and creative product developers and design excellent products that meet consumer needs.

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